

IN THE CLAIMS

Please amend the claims as follows:

1-18. (Canceled)

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19. (Currently Amended) A tip comprising a first edge corner having a corner angle of less than 90°, and an adjacent second edge corner having a corner angle of less than 90°, and a third edge corner having a corner angle of less than 90°, wherein the tip is formed of a substantially quadrilateral-shaped plate, and wherein said tip includes at least one edge corner having a corner angle of greater than 90°.

20.-21. (Canceled)

22. (Currently Amended) ~~The A tip of claim 19~~ comprising a first edge corner having a corner angle of less than 90°, and an adjacent second edge corner having a corner angle of less than 90°, wherein the tip is formed of a substantially quadrilateral-shaped plate, and wherein said tip includes at least one edge corner having a corner angle of greater than 90°, wherein a cutting edge extending between the first edge corner and the second edge corner is not parallel to an opposite cutting edge.

23. (Previously Presented) The tip of claim 19, wherein the plate has a seating face and a cutting edge face, wherein the tip has at least one side surface that extends between the seating face and the cutting edge face, wherein the at least one side surface outwardly inclines from the seating face to the cutting edge face.

24. (Previously Presented) The tip of claim 23, wherein the seating face is parallel to the cutting edge face.

25. (Previously Presented) The tip of claim 23, wherein the seating face is not parallel to the cutting edge face.

26-31. (Canceled)

32. (Currently Amended) A cutting tool comprising:

[[a]] an end-milling tool body having a distal end; and

a plurality of tips mounted to the distal end of the tool body, each tip of the plurality of tips comprising a plate of substantially quadrilateral shape, the plate having a first corner having a corner angle of less than 90° and an adjacent second corner having a corner angle of less than 90° , wherein at least one of the first corner and the second corner is arranged to project along an outer periphery of the distal end of the tool body.

33. (Previously Presented) The cutting tool of claim 37, wherein a cutting edge extending from the first corner inward toward the third corner in a radial direction of the tool body is defined as a front cutting edge extending to a rotation axis of the tool body.

34. (Currently Amended) ~~The~~ A cutting tool ~~of claim 32~~ comprising:

a tool body having a distal end; and

a plurality of tips mounted to the distal end of the tool body, each tip of the plurality of tips comprising a plate of substantially quadrilateral shape, the plate having a first corner having a corner angle of less than 90° and an adjacent second corner having a corner angle of less than 90° , wherein at least one of the first corner and the second corner is arranged to project along an outer periphery of the distal end of the tool body, wherein:

each tip of the plurality of tips has two opposing cutting edges defined as long cutting edges and another two opposing cutting edges defined as short cutting edges;

one of the long cutting edges in a first of the plurality of tips projecting towards the distal end of the tool body is defined as a first front peripheral cutting edge and one of the

El short cutting edges in the first of the plurality of tips is defined as a first outer peripheral cutting edge; and

one of the short cutting edges in a second of the plurality of tips projecting towards the distal end of the tool body is defined as a second front peripheral cutting edge and one of the long cutting edges in the second of the plurality of tips is defined as a second outer peripheral cutting edge.

35. (Previously Presented) The cutting tool of claim 34, wherein the first and second outer peripheral cutting edges are oriented such that rotation paths of the first and second outer peripheral cutting edges overlap when the tool body is rotated around a rotation axis.

36. (Canceled)

37. (Previously Presented) The cutting tool of claim 32, each tip of the plurality of tips has a third corner having a corner angle of less than 90°.

38. (Previously Presented) The cutting tool of claim 32, wherein the plate has a seating face and a cutting edge face, wherein each tip has at least one side surface that extends between the seating face and the cutting edge face, wherein the at least one side surface outwardly inclines from the seating face to the cutting edge face.

39. (Previously Presented) The cutting tool of claim 38, wherein the seating face is parallel to the cutting face.

40. (Previously Presented) The cutting tool of claim 38, wherein the seating face is not parallel to the cutting face.

41-57. (Canceled)

58. (Previously Presented) The cutting tool of claim 32, wherein all of the plurality of tips are identical in shape.

59. (Previously Presented) The tip of claim 19, wherein said tip has two opposing cutting edges defined as long cutting edges and another two opposing cutting edges defined as short cutting edges, and wherein said long cutting edges are not parallel to one another.

60. (Previously Presented) The tip of claim 59, wherein one of said short cutting edges extends between the first edge corner and the second edge corner.

61. (Currently Amended) The A tip of claim 19 comprising a first edge corner having a corner angle of less than 90°, and an adjacent second edge corner having a corner angle of less than 90°, wherein the tip is formed of a substantially quadrilateral-shaped plate, and wherein said tip includes at least one edge corner having a corner angle of greater than 90°, wherein:

said first edge corner is defined by a first cutting edge and a second cutting edge;

said first cutting edge includes a main cutting tooth portion and a sub-cutting tooth portion;

said sub-cutting tooth portion is provided adjacent a joint between said first cutting edge and said second cutting edge;

said sub-cutting tooth portion is slightly inclined with respect to main cutting tooth portion; and

wherein said corner angle of said first edge corner is defined as an angle between said main cutting tooth portion of said first cutting edge and said second cutting edge.

62. (Previously Presented) The cutting tool of claim 32, wherein each tip of said plurality of tips has two opposing cutting edges defined as long cutting edges and another two opposing cutting edges defined as short cutting edges, and wherein said long cutting edges are not parallel to one another.

63. (Previously Presented) The cutting tool of claim 62, wherein one of said short cutting edges extends between the first corner and the second corner.

64. (Previously Presented) The cutting tool of claim 32, wherein said plurality of tips comprises at least four tips.

65. (Currently Amended) The A cutting tool of claim 32 comprising:
a tool body having a distal end; and
a plurality of tips mounted to the distal end of the tool body, each tip of the plurality of tips comprising a plate of substantially quadrilateral shape, the plate having a first corner having a corner angle of less than 90° and an adjacent second corner having a corner angle of less than 90°, wherein at least one of the first corner and the second corner is arranged to project along an outer periphery of the distal end of the tool body, wherein:

said first corner is defined by a first cutting edge and a second cutting edge;

said first cutting edge includes a main cutting tooth portion and a sub-cutting tooth portion;

said sub-cutting tooth portion is provided adjacent a joint between said first cutting edge and said second cutting edge;

said sub-cutting tooth portion is slightly inclined with respect to main cutting tooth portion; and

wherein said corner angle of said first corner is defined as an angle between said main cutting tooth portion of said first cutting edge and said second cutting edge.

66. (Previously Presented) A cutting tool comprising:

a tool body having a distal end; and

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a plurality of tips mounted to the distal end of the tool body, each tip of the plurality of tips comprising a plate of substantially quadrilateral shape, the plate having a first corner having a corner angle of less than 90° and an adjacent second corner having a corner angle of less than 90° , wherein at least one of the first corner and the second corner is arranged to project along an outer periphery of the distal end of the tool body, wherein:

said tool body has an axis of rotation;

said plurality of tips comprises a first tip, a second tip, a third tip, and a fourth tip;

said first tip and said third tip are provided within a first groove on said tool body, said first tip and said third tip being provided at different locations along the axis of rotation, said first tip and said third tip being spaced apart along the axis of rotation; and

said second tip and said fourth tip are provided within a second groove on said tool body, said second tip and said fourth tip being provided at different locations along the axis of rotation, said second tip and fourth tip being spaced apart along the axis of rotation.

67. (Previously Presented) The cutting tool of claim 66, wherein:

said first tip has a first outer peripheral cutting edge and the second tip has a second outer peripheral cutting edge, said first outer peripheral cutting edge and said second outer peripheral cutting edge are oriented such that rotation paths of said first outer peripheral cutting edge and said second outer peripheral cutting edge overlap when said tool body is rotated around the rotation axis;

said third tip has a third outer peripheral cutting edge and the fourth tip has a fourth outer peripheral cutting edge, said third outer peripheral cutting edge and said fourth outer peripheral cutting edge are oriented such that rotation paths of said third outer peripheral

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cutting edge and said fourth outer peripheral cutting edge overlap when said tool body is rotated around the rotation axis;

a first space provided between said first outer peripheral cutting edge and said third outer peripheral cutting edge, said first space being oriented such that a rotation path of at least one of said second outer peripheral cutting edge and said fourth outer peripheral cutting edge overlap with said first space when said tool body is rotated around the rotation axis;

a second space is provided between said second outer peripheral cutting edge and said fourth outer peripheral cutting edge, said second space being oriented such that a rotation path of at least one of said first outer peripheral cutting edge and said third outer peripheral cutting edge overlap with said second space when said tool body is rotated around the rotation axis.

68. (Currently Amended) A tip comprising a substantially planar plate including a first edge corner having a corner angle of less than 90° , ~~and~~ an adjacent second edge corner having a corner angle of less than 90° , and a third edge corner having a corner angle of less than 90° , wherein the plate includes at least one edge corner having a corner angle of greater than 90° .

69. (Canceled)

70. (Currently Amended) ~~The A tip of claim 68~~ comprising a substantially planar plate including a first edge corner having a corner angle of less than 90° , and an adjacent second edge corner having a corner angle of less than 90° , wherein the plate includes at least one edge corner having a corner angle of greater than 90° , wherein a cutting edge extending between the first edge corner and the second edge corner is not parallel to an opposite cutting edge.

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71. (Previously Presented) The tip of claim 68, wherein the plate has a seating face and a cutting edge face, wherein the tip has at least one side surface that extends between the seating face and the cutting edge face, wherein the at least one side surface outwardly inclines from the seating face to the cutting edge face.

72. (Previously Presented) The tip of claim 71, wherein the seating face is parallel to the cutting edge face.

73. (Previously Presented) The tip of claim 71, wherein the seating face is not parallel to the cutting edge face.

74. (Previously Presented) The tip of claim 68, wherein said tip has two opposing cutting edges defined as long cutting edges and another two opposing cutting edges defined as short cutting edges, and wherein said long cutting edges are not parallel to one another.

75. (Previously Presented) The tip of claim 74, wherein one of said short cutting edges extends between the first edge corner and the second edge corner.

76. (Currently Amended) The A tip of claim 68 comprising a substantially planar plate including a first edge corner having a corner angle of less than 90°, and an adjacent second edge corner having a corner angle of less than 90°, wherein the plate includes at least one edge corner having a corner angle of greater than 90°, wherein:

said first edge corner is defined by a first cutting edge and a second cutting edge;

said first cutting edge includes a main cutting tooth portion and a sub-cutting tooth portion;

said sub-cutting tooth portion is provided adjacent a joint between said first cutting edge and said second cutting edge;

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said sub-cutting tooth portion is slightly inclined with respect to main cutting tooth portion; and

wherein said corner angle of said first edge corner is defined as an angle between said main cutting tooth portion of said first cutting edge and said second cutting edge.

77. (Currently Amended) A cutting tool comprising:

[[a]] an end-milling tool body having a distal end; and

a first tip mounted to the distal end of the tool body, said first tip comprising a substantially planar plate including a first edge corner having a corner angle of less than 90° , and an adjacent second edge corner having a corner angle of less than 90° , wherein at least one of the first edge corner and the second edge corner is arranged along an outer periphery of the distal end of the tool body, and wherein the plate includes at least one edge corner having a corner angle of greater than 90° .

78. (Previously Presented) The cutting tool of claim 77, wherein at least one of the first edge corner and the second edge corner is arranged along a front edge of the distal end of the tool body.

79. (Previously Presented) The cutting tool of claim 77, further comprising a second tip mounted to the distal end of the tool body, said second tip comprising a plate including a first edge corner having a corner angle of less than 90° , and an adjacent second edge corner having a corner angle of less than 90° , wherein at least one of the first edge corner and the second edge corner of said second tip is arranged along the outer periphery of the distal end of the tool body.

80. (Previously Presented) The cutting tool of claim 79, further comprising a third tip mounted to the distal end of the tool body, said third tip comprising a plate including a

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first edge corner having a corner angle of less than 90° , and an adjacent second edge corner having a corner angle of less than 90° , wherein at least one of the first edge corner and the second edge corner of said third tip is arranged along the outer periphery of the distal end of the tool body.

81. (Previously Presented) The cutting tool of claim 80, further comprising a fourth tip mounted to the distal end of the tool body, said fourth tip comprising a plate including a first edge corner having a corner angle of less than 90° , and an adjacent second edge corner having a corner angle of less than 90° , wherein at least one of the first edge corner and the second edge corner of said fourth tip is arranged along the outer periphery of the distal end of the tool body.

82. (Previously Presented) The cutting tool of claim 81, wherein said first tip, said second tip, said third tip, and said fourth tip are identical in shape.

83. (Previously Presented) A cutting tool comprising:

a tool body having a distal end;

a first tip mounted to the distal end of the tool body, said first tip comprising a substantially planar plate including a first edge corner having a corner angle of less than 90° , and an adjacent second edge corner having a corner angle of less than 90° , wherein at least one of the first edge corner and the second edge corner is arranged along an outer periphery of the distal end of the tool body;

a second tip mounted to the distal end of the tool body, said second tip comprising a plate including a first edge corner having a corner angle of less than 90° , and an adjacent second edge corner having a corner angle of less than 90° , wherein at least one of the first

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edge corner and the second edge corner of said second tip is arranged along the outer periphery of the distal end of the tool body;

a third tip mounted to the distal end of the tool body, said third tip comprising a plate including a first edge corner having a corner angle of less than 90° , and an adjacent second edge corner having a corner angle of less than 90° , wherein at least one of the first edge corner and the second edge corner of said third tip is arranged along the outer periphery of the distal end of the tool body; and

a fourth tip mounted to the distal end of the tool body, said fourth tip comprising a plate including a first edge corner having a corner angle of less than 90° , and an adjacent second edge corner having a corner angle of less than 90° , wherein at least one of the first edge corner and the second edge corner of said fourth tip is arranged along the outer periphery of the distal end of the tool body, wherein:

each tip of said first tip, said second tip, said third tip, and said fourth tip have two opposing cutting edges defined as long cutting edges and another two opposing cutting edges defined as short cutting edges;

one of said long cutting edges of said first tip extends along the outer periphery;

one of said short cutting edges of said second tip extends along the outer periphery;

one of said long cutting edges of said third tip extends along the outer periphery; and

one of said long cutting edges of said fourth tip extends along the outer periphery.

84. (Previously Presented) A cutting tool comprising:

a tool body having a distal end;

a first tip mounted to the distal end of the tool body, said first tip comprising a substantially planar plate including a first edge corner having a corner angle of less than 90° ,

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and an adjacent second edge corner having a corner angle of less than 90° , wherein at least one of the first edge corner and the second edge corner is arranged along an outer periphery of the distal end of the tool body;

a second tip mounted to the distal end of the tool body, said second tip comprising a plate including a first edge corner having a corner angle of less than 90° , and an adjacent second edge corner having a corner angle of less than 90° , wherein at least one of the first edge corner and the second edge corner of said second tip is arranged along the outer periphery of the distal end of the tool body;

a third tip mounted to the distal end of the tool body, said third tip comprising a plate including a first edge corner having a corner angle of less than 90° , and an adjacent second edge corner having a corner angle of less than 90° , wherein at least one of the first edge corner and the second edge corner of said third tip is arranged along the outer periphery of the distal end of the tool body; and

a fourth tip mounted to the distal end of the tool body, said fourth tip comprising a plate including a first edge corner having a corner angle of less than 90° , and an adjacent second edge corner having a corner angle of less than 90° , wherein at least one of the first edge corner and the second edge corner of said fourth tip is arranged along the outer periphery of the distal end of the tool body, wherein:

said tool body has an axis of rotation;

said first tip and said third tip are provided within a first groove on said tool body, said first tip and said third tip being provided at different locations along the axis of rotation, said first tip and said third tip being spaced apart along the axis of rotation; and

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said second tip and said fourth tip are provided within a second groove on said tool body, said second tip and said fourth tip being provided at different locations along the axis of rotation, said second tip and fourth tip being spaced apart along the axis of rotation.

85. (Previously Presented) The cutting tool of claim 84, wherein:

said first tip has a first outer peripheral cutting edge and the second tip has a second outer peripheral cutting edge, said first outer peripheral cutting edge and said second outer peripheral cutting edge are oriented such that rotation paths of said first outer peripheral cutting edge and said second outer peripheral cutting edge overlap when said tool body is rotated around the rotation axis;

said third tip has a third outer peripheral cutting edge and the fourth tip has a fourth outer peripheral cutting edge, said third outer peripheral cutting edge and said fourth outer peripheral cutting edge are oriented such that rotation paths of said third outer peripheral cutting edge and said fourth outer peripheral cutting edge overlap when said tool body is rotated around the rotation axis;

a first space provided between said first outer peripheral cutting edge and said third outer peripheral cutting edge, said first space being oriented such that a rotation path of at least one of said second outer peripheral cutting edge and said fourth outer peripheral cutting edge overlap with said first space when said tool body is rotated around the rotation axis; and

a second space is provided between said second outer peripheral cutting edge and said fourth outer peripheral cutting edge, said second space being oriented such that a rotation path of at least one of said first outer peripheral cutting edge and said third outer peripheral cutting edge overlap with said second space when said tool body is rotated around the rotation axis.

86. (Previously Presented) The cutting tool of claim 77, wherein said first tip has two opposing cutting edges defined as long cutting edges and another two opposing cutting edges defined as short cutting edges, and wherein said long cutting edges are not parallel to one another.

87. (Previously Presented) The cutting tool of claim 86, wherein one of said short cutting edges extends between the first edge corner and the second edge corner.

88. (Currently Amended) The A cutting tool of claim 77 comprising:
a tool body having a distal end; and
a first tip mounted to the distal end of the tool body, said first tip comprising a
substantially planar plate including a first edge corner having a corner angle of less than 90°,
and an adjacent second edge corner having a corner angle of less than 90°, wherein at least
one of the first edge corner and the second edge corner is arranged along an outer periphery
of the distal end of the tool body, and wherein the plate includes at least one edge corner
having a corner angle of greater than 90°, wherein:

said first edge corner is defined by a first cutting edge and a second cutting edge;

said first cutting edge includes a main cutting tooth portion and a sub-cutting tooth portion;

said sub-cutting tooth portion is provided adjacent a joint between said first cutting edge and said second cutting edge;

said sub-cutting tooth portion is slightly inclined with respect to main cutting tooth portion; and

wherein said corner angle of said first edge corner is defined as an angle between said main cutting tooth portion of said first cutting edge and said second cutting edge.

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89. (Previously Presented) The cutting tool of claim 77, said first tip has a third edge corner having a corner angle of less than 90°

90. (Previously Presented) The cutting tool of claim 32, wherein the plate includes at least one corner having a corner angle of greater than 90° .